

**Final
Site-Specific Field Sampling Plan,
Site-Specific Safety and Health Plan, and Site-Specific
Unexploded Ordnance Safety Plan Attachments
Former Mock Village at Yahoo Lake, Parcel 130Q-X**

**Fort McClellan
Calhoun County, Alabama**

**Task Order CK10
Contract No. DACA21-96-D-0018
IT Project No. 796887**

September 2000

Revision 1

**Final
Site-Specific Field Sampling Plan Attachment
Site Investigation at Former Mock Village at
Yahoo Lake, Parcel 130Q-X**

**Fort McClellan
Calhoun County, Alabama**

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Table of Contents

	Page
List of Tables	iii
List of Figures	iii
List of Acronyms	iv
Executive Summary	ES-1
1.0 Project Description.....	1-1
1.1 Introduction	1-1
1.2 Site Description	1-1
1.3 Scope of Work	1-3
2.0 Summary of Existing Environmental Studies	2-1
3.0 Site-Specific Data Quality Objectives	3-1
3.1 Overview	3-1
3.2 Data Users and Available Data.....	3-1
3.3 Conceptual Site Exposure Model	3-2
3.4 Decision-Making Process, Data Uses, and Needs.....	3-3
3.4.1 Risk Evaluation	3-3
3.4.2 Data Types and Quality	3-4
3.4.3 Precision, Accuracy, and Completeness.....	3-4
4.0 Field Activities	4-1
4.1 UXO Survey Requirements and Utility Clearances	4-1
4.1.1 Surface UXO Survey	4-1
4.1.2 Downhole UXO Survey	4-1
4.1.3 Utility Clearances	4-1
4.2 Environmental Sampling	4-2
4.2.1 Surface Soil Sampling.....	4-2
4.2.1.1 Sample Locations and Rationale	4-2
4.2.1.2 Sample Collection	4-2
4.2.2 Subsurface Soil Sampling	4-2
4.2.2.1 Sample Locations and Rationale	4-3
4.2.2.2 Sample Collection	4-3
4.2.3 Permanent Residuum Monitoring Wells.....	4-3
4.2.4 Groundwater Sampling	4-4

Table of Contents (Continued)

	Page
4.2.4.1 Sample Locations and Rationale	4-4
4.2.4.2 Sample Collection	4-4
4.2.5 Surface Water Sampling	4-5
4.2.5.1 Sample Locations and Rationale	4-5
4.2.5.2 Sample Collection	4-5
4.2.6 Sediment Sampling	4-5
4.2.6.1 Sample Locations and Rationale	4-5
4.2.6.2 Sample Collection	4-6
4.3 Decontamination Requirements	4-6
4.4 Surveying of Sample Locations.....	4-6
4.5 Analytical Program.....	4-7
4.6 Sample Preservation, Packaging, and Shipping	4-7
4.7 Investigation-Derived Waste Management	4-8
4.8 Site-Specific Safety and Health.....	4-8
5.0 Project Schedule.....	5-1
6.0 References	6-1

List of Tables

<i>Number</i>	<i>Title</i>	<i>Follows Page</i>
3-1	Summary of Data Quality Objectives	3-1
4-1	Sampling Locations and Rationale	4-2
4-2	Surface Soil and Subsurface Soil Sample Designations and QA/QC Sample Quantities	4-2
4-3	Groundwater Sample Designations and QA/QC Sample Quantities	4-4
4-4	Surface Water and Sediment Sample Designations and QA/QC Sample Quantities	4-5
4-5	Analytical Samples	4-7

List of Figures

<i>Number</i>	<i>Title</i>	<i>Follows Page</i>
1-1	Site Location Map, Former Mock Village at Yahoo Lake, Parcel 130Q-X	1-1
1-2	Site Map, Former Mock Village at Yahoo Lake, Parcel 130Q-X	1-1
3-1	Human Health Conceptual Site Exposure Model	3-3
4-1	Proposed Sample Locations, Former Mock Village at Yahoo Lake, Parcel 130Q-X	4-2

List of Acronyms

See Attachment 1 for the list of abbreviations and acronyms.

Executive Summary

In accordance with Contract Number DACA21-96-D-0018, Task Order CK10, IT Corporation (IT) will conduct site investigation activities at the Former Mock Village at Yahoo Lake, Parcel 130Q-X, at Fort McClellan, Calhoun County, Alabama, to determine the presence or absence of potential site-specific chemicals at this site. The purpose of this site-specific field sampling plan (SFSP) is to provide technical guidance for sampling activities at the Former Mock Village at Yahoo Lake, Parcel 130Q-X.

The Former Mock Village at Yahoo Lake, Parcel 130Q-X, is located in the southwest area of the Main Post. The Former Mock Village is located east of Iron Mountain Road, at Yahoo Lake, on the southern slope of Baltzell Hills. Historical maps and aerial photographs indicate that the Former Mock Village at Yahoo Lake was constructed between 1946 and 1954. The Environmental Photographic Interpretation Center Report indicates that the training facility had been abandoned by 1961, and that only building foundations remained at that time. The Former Mock Village at Yahoo Lake, Parcel 130Q-X comprised 5.2 acres and is inactive. Between 1961 and 1969, Remount Creek west of the Former Mock Village was dammed to form Yahoo Lake. Yahoo Lake presently covers the majority of Parcel 130Q-X, although 1.73 acres on the eastern end of the parcel remain above the lake surface. The size of Yahoo Lake is approximately 13.5 acres. The area around Yahoo Lake was then used as a picnic and camping area, but has since been abandoned. However, a view of a 1954 aerial photograph appears to show the Former Mock Village was located further south along both sides of the east-west road where the picnic shelters are now located. This suspected location is just outside the southeast corner of Parcel 130Q-X.

Specific information on utilization of the Former Mock Village facility is unavailable, although it is assumed that training was similar to that which occurred at the Former Mock Vietnam Village. Therefore, the materials used at this training facility are assumed to include chloracetophenone and ortho-chlorobenzylidene-malononitrile tear gas, booby trap devices, flares, and practice smoke grenades.

Specifically, IT will collect five surface soil samples, five subsurface soil samples, five groundwater samples, six surface water samples, and six sediment samples at this site. Potential contaminant sources at the Former Mock Village at Yahoo Lake, Parcel 130Q-X, are primarily unknown, but may include nitroexplosives, chloracetophenone and ortho-chlorobenzylidene-

malononitrile tear gas, flares, and practice smoke grenades. Chemical analyses of the samples collected during the field program will include volatile organic compounds, semivolatile organic compounds, nitroexplosives, and metals. In addition, sediment samples will be analyzed for total organic carbon and grain size. Results from these analyses will be compared with site-specific screening levels and ecological screening values presented in the IT July 2000 *Final Human Health and Ecological Screening Values and PAH Background Summary Report*, and regulatory agency guidelines.

The Former Mock Village at Yahoo Lake, Parcel 130Q-X, falls within the “Possible Explosive Ordnance Impact Areas” shown on Plate 10 of the U.S. Army Corps of Engineers July 1999 *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama*; therefore, unexploded ordnance (UXO) surface sweeps and downhole surveys of soil borings will be required to support field activities at Former Mock Village at Yahoo Lake, Parcel 130Q-X. The surface sweeps and downhole surveys will be conducted to identify anomalies for the purposes of UXO avoidance.

This SFSP attachment to the installation-wide sampling and analysis plan (SAP) for the Former Mock Village at Yahoo Lake, Parcel 130Q-X, will be used in conjunction with the site-specific safety and health plan, the site specific UXO safety plan, the installation-wide work plan, and the SAP. The SAP includes the installation-wide safety and health plan, waste management plan, ordnance and explosives management plan, and quality assurance plan. Site-specific hazard analyses are included in the site-specific safety and health plan and the site-specific UXO safety plan.

1.0 Project Description

1.1 Introduction

The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) of the Former Mock Village at Yahoo Lake, Parcel 130Q-X, under Task Order CK10, Contract Number DACA21-96-D-0018.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 2000a) for FTMC has been prepared to provide technical guidance for sample collection and analysis at the Former Mock Village at Yahoo Lake, Parcel 130Q-X. This SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) and the site-specific unexploded ordnance (UXO) safety plan developed for the Former Mock Village at Yahoo Lake, Parcel 130Q-X, and the installation-wide work plan (WP) (IT, 1998) and SAP. The SAP includes the installation-wide safety and health plan (SHP), waste management plan, ordnance and explosives management plan, and quality assurance plan (QAP). Site-specific hazard analyses are included in the SSHP and the site-specific UXO safety plan.

1.2 Site Description

The Former Mock Village at Yahoo Lake, Parcel 130Q-X, is located in the southwest area of the Main Post (Figure 1-1). The Former Mock Village is located east of Iron Mountain Road, at Yahoo Lake, on the southern slope of Baltzell Hills (Figure 1-2). Historical maps and aerial photographs indicate that the Former Mock Village at Yahoo Lake was constructed between 1946 and 1954 (Environmental Science and Engineering, Inc. [ESE], 1998). The Environmental Photographic Interpretation Center Report indicates that the training facility had been abandoned by 1961, and that only building foundations remained at that time (ESE, 1998). The Former Mock Village at Yahoo Lake, Parcel 130Q-X comprised 5.2 acres and is inactive. Between 1961 and 1969, Remount Creek west of the Former Mock Village was dammed to form Yahoo Lake (USACE, 1999a). Yahoo Lake presently covers the majority of Parcel 130Q-X, although 1.73 acres on the eastern end of the parcel remain above the lake surface. The size of Yahoo Lake is approximately 13.5 acres (Roy F. Weston Inc., 1990). The area around Yahoo Lake was previously used as a picnic and camping area, but has since been abandoned. However, a review of a 1954 aerial photograph appears to show the Former Mock Village was located further south

along both sides of the east-west road where the picnic shelters are now located. This suspected location is just outside the southeast corner of Parcel 130Q-X.

Specific information on utilization of the Former Mock Village facility is unavailable, although it is assumed that training was similar to that which occurred at the Former Mock Vietnam Village (ESE, 1998). Therefore, the materials used at this training facility are assumed to include chloroacetophenone and ortho-chlorobenzlidene-malononitrile tear gas, booby trap devices, flares, and practice smoke grenades.

The elevation of the site varies between 990 and 1,035 feet (National Geodetic Vertical Datum of 1929). Surface water in the immediate area appears to drain toward Yahoo Lake. Local shallow groundwater direction at the site is probably controlled by topography; therefore, groundwater direction in the residuum is likely to the west, toward Yahoo Lake.

Soils at the Former Mock Village at Yahoo Lake, Parcel 130Q-X, consist of the Anniston and Allen Series. The Anniston and Allen Series of soils consist of strongly acidic, deep, well-drained soils that have developed in old local alluvium. The parent material washed from the adjacent higher-lying Linker, Muskingum, Enders, and Montevallo soils, which developed from weathered sandstone, shale, and quartzite. Sandstone and quartzite gravel, cobbles, and fragments as much as 8 inches in diameter are on the surface and throughout the soil.

Soils at this site fall into the Anniston and Allen stony loams, 0 to 10 percent slopes, (U.S. Department of Agriculture, 1961). Strong slopes, reduced erosion, and numerous stones, as much as 8 inches in diameter, distinguish the series from the Anniston and Allen gravelly loams, 2 to 6 percent slopes, eroded. The Anniston and Allen stony loams have less erosion, a thicker surface layer, and more stones. The surface soil of this series is very dark brown to dark greyish-brown stony loam, typically 6 to 10 inches thick. At a depth of about 10 inches, this material grades into a dark-red or dark reddish-brown, stony fine sandy loam. Stones and strong slopes make this soil type poorly suited to cultivation, and most of the acreage of this soil type is wooded. This mapping unit consists of friable soils that have developed in old alluvium on foot slopes and along the base of mountains. This soil type is permeable, has medium infiltration, and a high capacity for available moisture.

1.3 Scope of Work

The scope of work for activities associated with the SI at the Former Mock Village at Yahoo Lake, Parcel 130Q-X, as specified by the statement of work (USACE, 1999b), includes the following tasks:

- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Conduct a surface and near-surface UXO survey over all areas to be included in the supplemental sampling effort.
- Provide downhole UXO support for all intrusive drilling to determine buried downhole hazards.
- Collect five surface soil samples, five subsurface soil samples, five groundwater samples, six surface water samples, and six sediment samples to determine whether potential site-specific chemicals (PSSC) are present at the Former Mock Village at Yahoo Lake, Parcel 130Q-X site and to provide data useful for supporting any future planned corrective measures and closure activities.
- Samples will be analyzed for the parameters listed in Section 4.5.

The Former Mock Village at Yahoo Lake, Parcel 130Q-X, falls within the “Possible Explosive Ordnance Impact Areas” shown on Plate 10 of the *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama* (USACE, 1999a); therefore, UXO surface sweeps and downhole surveys of soil borings will be required to support field activities at this site. The surface sweeps and downhole surveys will be conducted to identify anomalies for the purposes of UXO avoidance. The site-specific UXO safety plan will be used to support hazardous, toxic, and radiological waste investigation and construction activities at the Former Mock Village at Yahoo Lake should incidental ordnance, explosive, and UXO be encountered and require avoidance or disposal.

At completion of the field activities and sample analyses, draft and final SI summary reports will be prepared to summarize the results of the activities, to evaluate the absence or presence of PSSCs at this site, and to recommend further actions, if appropriate. SI sampling reports will be prepared in accordance with current U.S. Environmental Protection Agency (EPA), Region IV and the Alabama Department of Environmental Management (ADEM) guidelines.

2.0 Summary of Existing Environmental Studies

An environmental baseline survey (EBS) was conducted by ESE to document current environmental conditions of all FTMC property (ESE, 1998). The study was to identify sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense guidance for fast-track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by the following seven criteria:

1. Areas where no storage, release, or disposal (including migration) has occurred
2. Areas where only release or disposal of petroleum products has occurred
3. Areas of contamination below action levels
4. Areas where all necessary remedial actions have been taken
5. Areas of known contamination with removal and/or remedial action underway
6. Areas of known contamination where required response actions have not been taken
7. Areas that are not evaluated or require further evaluation.

For non-Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) environmental or safety issues, the parcel label includes the following components: a unique non-CERCLA issue number, the letter "Q" designating the parcel as a Community Environmental Response Facilitation Act (CERFA) Category 1 Qualified Parcel, and the code for the specific non-CERCLA issue(s) present (ESE, 1998). The non-CERCLA issue codes used are:

- A = Asbestos (in buildings)
- L = Lead-based paint (in buildings)
- P = Polychlorinated biphenyls
- R = Radon (in buildings)
- RD = Radionuclides/radiological issues
- X = UXO
- CWM = Chemical warfare material.

The EBS was conducted in accordance with the CERFA (CERFA-Public Law 102-426) protocols and U.S. Department of Defense policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, ADEM, EPA Region IV, and Calhoun County, as well as a database search of CERCLA-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels.

The Former Mock Village at Yahoo Lake, Parcel 130Q-X, was identified as a Category 1 CERFA site, qualified “X” for UXO. This CERFA site is a parcel where no known or recorded storage, release, or disposal (including migration) has occurred on site property, but is qualified for potential UXO. The Former Mock Village at Yahoo Lake, Parcel 130Q-X also requires additional evaluation to determine the environmental condition of the parcel.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objective (DQO) process is followed to establish data requirements. This process ensures that the proper quantity and quality of data are generated to support the decision-making process associated with the action selection for the Former Mock Village at Yahoo Lake, Parcel 130Q-X. This section incorporates the components of the DQO process described in the publication EPA 540-R-93-071 *Data Quality Objectives Process for Superfund* (EPA, 1993). The DQO process as applied to the Former Mock Village at Yahoo Lake, Parcel 130Q-X site is described in more detail in Section 4.3 of the WP. Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples, and the procedures necessary to meet the objectives of the SI and establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Chapter 4.0 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using Contract Laboratory Program-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

3.2 Data Users and Available Data

The available data, presented in Table 3-1, related to the SI at the Former Mock Village, Parcel 130Q-X site have been used to formulate a site-specific conceptual model. This conceptual model was developed to support the development of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for the data and information generated during field activities are primarily EPA, USACE, ADEM, FTMC, and the USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program has also been designed to provide the level of defensible data and information required to confirm or rule out the existence of residual chemical contamination in site media.

3.3 Conceptual Site Exposure Model

The conceptual site exposure model (CSEM) provides the basis for identifying and evaluating potential risks and hazards to human health in the risk assessment. The CSEM includes receptors and potential exposure pathways appropriate to all plausible scenarios. The CSEM facilitates a consistent and comprehensive evaluation of risk to human health through graphically presenting all possible exposure pathways, including sources, release and transport pathways, and exposure routes. In addition, the CSEM helps to ensure that potential pathways are not overlooked. The elements of a complete exposure pathway and CSEM are:

- Source (i.e., contaminated environmental) media
- Contaminant release mechanisms
- Contaminant transport pathways
- Receptors
- Exposure pathways.

Contaminant release mechanisms and transport pathways are not relevant for direct receptor contact scenarios with a contaminated source medium.

Primary contaminant releases were probably limited to leaks and spills that entered surface soil. Potential contaminant transport pathways include infiltration and leaching to subsurface soil and groundwater, biotransfer to fish and deer, dust emissions and volatilization to ambient air, groundwater to surface water, surface water runoff, and erosion to surface water and sediment.

Currently the site is not utilized, and is not maintained. The site is not fenced, and therefore people may trespass at the site for hunting or fishing. Most of the site is under water and alongside Yahoo Lake. The only plausible receptors under these current land-use scenarios are a recreational site user who may fish or hunt. Other potential receptors considered, but not included under current land-use scenarios, are the:

- **Construction Worker.** The site is unused, and no development or construction is occurring or scheduled.
- **Resident.** The site is not currently used for residential purposes.

Future land-use in this area is shown as Remediation Reserve (FTMC, 1997) and will likely be used for a religious or corporate retreat. The site may not be deemed safe for public access until remediation has been completed because of the potential for UXO (FTMC, 1997). Plausible future land-use receptor scenarios addressed in the CSEM include:

- **Resident.** The site is expected to be used as a retreat with residences in the future; however, since most people will only be visiting the site while on retreat, the residential scenario is considered in order to provide information for the Project Manager and regulators. The retreat may not represent a true residential scenario since the exposure duration and frequency would be much less at a retreat than at a true residence.
- **Groundskeeper.** The site is likely to have areas that will need to be maintained, such as around buildings and parking lots.
- **Construction Worker.** It is anticipated that some construction will occur at the site in the future, thus this receptor is evaluated.
- **Recreational Site User.** The site is planned for recreational use. Hunting and fishing are potential exposure pathways for the recreational site user.

A summary of relevant contaminant release and transport mechanisms, source and exposure media, and receptors and exposure pathways for this site is provided in Table 3-1 and Figure 3-1.

3.4 Decision-Making Process, Data Uses, and Needs

The decision-making process consists of a seven-step process that is presented in detail in Section 4.3 of the WP and will be followed during the SI at the Former Mock Village at Yahoo Lake, Parcel 130Q-X. Data uses and needs are summarized in Table 3-1.

3.4.1 Risk Evaluation

Confirmation of contamination at the Former Mock Village at Yahoo Lake, Parcel 130Q-X, will be based on comparing detected site chemicals of potential concern to site-specific screening levels developed in the *Final Human Health and Ecological Screening Values and PAH Background Summary Report* (IT, 2000b). EPA definitive data with CESAS Level B data packages will be used to determine whether or not PSSCs are detected in site media. Definitive data will be adequate for confirming the presence of site contamination and for supporting a feasibility study and risk assessment.

Assessment of potential ecological risk associated with sites or parcels (e.g., surface water and sediment sampling, specific ecological assessment methods, etc.) will be addressed in accordance with the procedures in the WP.

3.4.2 Data Types and Quality

Surface soil, subsurface soil, groundwater, surface water, and sediment samples will be sampled and analyzed to meet the objectives of the SI at the Former Mock Village at Yahoo Lake, Parcel

130Q-X. Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP. Samples will be analyzed by EPA-approved SW-846 Methods Update III, where available; comply with EPA definitive data requirements; and be reported using hard copy data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4.3 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Section 9.0 of the QAP.

4.0 Field Activities

4.1 UXO Survey Requirements and Utility Clearances

The Former Mock Village at Yahoo Lake, Parcel 130Q-X falls within the “Possible Explosive Ordnance Impact Area” shown on Plate 10 of the *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama* (USACE, 1999a). Therefore, IT will conduct UXO avoidance activities, including surface sweeps and downhole surveys of soil borings.

4.1.1 Surface UXO Survey

A UXO sweep will be conducted over areas that will be included in the sampling and surveying activities to identify UXO on or near the surface that may present a hazard to on-site workers during field activities. Low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects. UXO located on the surface will be identified and conspicuously marked for each avoidance. Subsurface metallic anomalies will not be disturbed, and will also be marked for easy avoidance. UXO personnel requirements, procedures, and detailed descriptions of the geophysical equipment to be used are provided in Chapter 4.0 and Appendices D and E of the approved SAP (IT, 2000a).

4.1.2 Downhole UXO Survey

During the soil boring and downhole sampling, downhole UXO surveys will be performed to determine if buried metallic objects are present. UXO monitoring, as described in Chapter 4.0 of the SAP (IT, 2000a), will continue until undisturbed soils are encountered or the borehole has been advanced to 12 feet below ground surface, whichever is reached first.

4.1.3 Utility Clearances

After the UXO surface survey has cleared the area to be sampled and prior to performing any intrusive sampling, a utility clearance will be performed at locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP (IT, 2000a). The site manager will mark the proposed locations with stakes, coordinate with the local utility companies to clear the proposed locations for utilities, and obtain digging permits. Once the locations are approved (for both UXO and utility avoidance) for intrusive sampling, the stakes will be labeled as cleared.

4.2 Environmental Sampling

The environmental sampling program at the Former Mock Village at Yahoo Lake, Parcel 130Q-X site includes the collection of surface soil, subsurface soil, groundwater, surface water, and sediment samples for chemical analyses. These samples will be collected and analyzed to provide data for characterizing the site to determine the environmental condition of the site and any further action to be conducted at the site. Additionally, samples will be collected from environmental media in locations that will assist in the assessment of potential ecological impacts resulting from activities at the site.

4.2.1 Surface Soil Sampling

Surface soil samples will be collected from five locations at the Former Mock Village, Parcel 130Q-X.

4.2.1.1 Sample Locations and Rationale

The surface soil sampling rationale are listed in Table 4-1. Proposed sampling locations are shown in Figure 4-1. Surface soil sample designations and required QA/QC sample requirements are summarized in Table 4-2. The final soil boring sampling locations will be determined in the field by the on-site geologist, based on actual field conditions.

4.2.1.2 Sample Collection

Surface soil samples will be collected from the upper 1 foot of soil by direct-push methodology as specified in Section 4.7.1.1 of the SAP (IT, 2000a). Collected soil samples will be screened using a photoionization detector (PID) in accordance with Section 4.15 of the SAP. Surface soil samples will be screened for information purposes only, and not to select samples for analysis. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. Sample documentation and chain-of-custody (COC) will be recorded as specified in Section 4.13 of the SAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.2 Subsurface Soil Sampling

Subsurface soil samples will be collected from five borings installed at the Former Mock Village at Yahoo Lake, Parcel 130Q-X.

4.2.2.1 Sample Locations and Rationale

Subsurface soil samples will be collected from the soil borings proposed on Figure 4-1. The subsurface soil sampling rationale is listed in Table 4-1. Subsurface soil samples to be collected are listed in Table 4-2. The final soil boring sampling locations will be determined in the field by the on-site geologist, based on actual field observations and utility clearance results.

4.2.2.2 Sample Collection

Subsurface soil samples will be collected from soil borings at a depth greater than 1 foot below ground surface in the unsaturated zone. The soil borings will be advanced and soil samples collected using the direct-push sampling procedures specified in Section 4.7.1.1 of the SAP (IT, 2000a).

Soil samples will be collected continuously for the first 12 feet or until either groundwater or refusal is reached. A detailed lithological log will be recorded by the on-site geologist for each borehole. At least one subsurface sample from each borehole will be selected for analyses. The collected subsurface soil samples will be field-screened using a PID in accordance with Section 4.15 of the SAP to measure samples exhibiting elevated readings exceeding background (readings in ambient air). Typically, the subsurface soil sample showing the highest reading (above background) will be selected and sent to the laboratory for analysis. If none of the samples indicate readings exceeding background using the PID, the deepest interval from the soil boring will be sampled and submitted to the laboratory for analyses. Subsurface soil samples will be selected for analyses from any depth interval if the on-site geologist suspects PSSCs at the interval. Site conditions such as lithology may also determine the actual sample depth interval submitted for analyses. More than one subsurface soil sample will be collected if field measurements and observations indicate a possible layer of PSSCs and/or additional sample data would provide insight to the existence of any PSSCs.

Sample documentation and COC will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.3 Permanent Residuum Monitoring Wells

Five permanent residuum monitoring wells will be installed at the Former Mock Village, Parcel 130Q-X site. The permanent residuum monitoring well locations are shown on Figure 4-1. The rationale for the monitoring well locations are presented in Table 4-1. The monitoring well boreholes will be drilled to the top of bedrock, or until adequate groundwater is encountered to

install a well with a 10 to 20 foot screen. Monitoring wells will be installed using a truck-mounted hollow-stem auger drill rig. The monitoring well casing will consist of new 2-inch inside-diameter, Schedule 40, threaded, flush-joint, polyvinyl chloride pipe. Attached to the bottom of the well casing will be a section of new threaded, flush-joint, 0.010-inch continuous wrap polyvinyl chloride well screen, approximately 10 to 20 feet long. The well will be installed so the well screen straddles the water table.

Soil samples for lithology will be collected continuously every 5 feet to the total depth of the hole during hollow-stem auger drilling to provide a detailed lithologic log. The samples will be collected for lithology using a 24-inch-long, 2-inch-or-larger-diameter, split-spoon sampler. The soil borings will be logged in accordance with American Standard for Testing and Materials Method D 2488 using the Unified Soil Classification System. The soil samples will be screened in the field using a PID. The monitoring wells will be drilled, installed, and developed as specified in Section 4.8 and Appendix C of the SAP (IT, 2000a). The exact monitoring well locations will be determined in the field by the on-site geologist, based on actual field conditions.

4.2.4 Groundwater Sampling

Groundwater samples will be collected from the five monitoring wells completed at the Former Mock Village, Parcel 130Q-X, as presented in Section 4.2.3.

4.2.4.1 Sample Locations and Rationale

Groundwater samples will be collected from the monitoring well locations shown on Figure 4-1. The groundwater sampling rationale is listed in Table 4-1. The groundwater sample designations, depths, and required QA/QC sample quantities are listed in Table 4-3.

4.2.4.2 Sample Collection

Prior to sampling monitoring wells, static water levels will be measured from each of the three monitoring wells installed at the site to define the groundwater flow in the residuum aquifer. Water level measurements will be performed as outlined in Section 4.18 of the SAP (IT, 2000a). Groundwater samples will be collected in accordance with the procedures outlined in Section 4.9.1.4 of the SAP.

Sample documentation and COC will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in

this SFSP are listed in Section 5.0, Table 5-1 of the QAP (IT, 2000a). The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.5 Surface Water Sampling

Six surface water samples will be collected from site of the Former Mock Village at Yahoo Lake, Parcel 130Q-X. Surface water samples will be collected from the four drainage ditches/creeks that enter Yahoo Lake on the eastern and southern shores as shown on Figure 4-1. The fifth surface water sample will be collected on the western side of the lake, where Yahoo Lake discharges into Remount Creek as shown on Figure 4-1.

4.2.5.1 Sample Locations and Rationale

The surface water sampling rationale are listed in Table 4-1. The surface water samples will be collected from the proposed locations on Figure 4-1. The surface water sample designations and required QA/QC sample requirements are listed in Table 4-4. The exact sampling locations will be determined in the field by the ecological sampler, based on drainage pathways and actual field observations.

4.2.5.2 Sample Collection

The surface water samples will be collected in accordance with the procedures specified in Section 4.9.1.3 of the SAP (IT, 2000a). Sample documentation and COC will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.6 Sediment Sampling

Six sediment samples will be collected from the site of the Former Mock Village at Yahoo Lake, Parcel 130Q-X. These sediment samples will be collected at the same locations as the surface water samples described in Section 4.2.6.

4.2.6.1 Sample Locations and Rationale

The proposed locations for the sediment samples are shown in Figure 4-1. Sediment sampling rationale is presented in Table 4-1. The sediment sample designation and required QA/QC sample requirements are listed in Table 4-4. The actual sediment sample points will be at the discretion of the ecological sampler, based on the drainage pathways and actual field observations.

4.2.6.2 Sample Collection

The sediment samples will be collected in accordance with the procedures specified in Section 4.9.1.2 of the SAP. Sediment samples for volatile organic analysis will be collected in EnCore sampling devices. Sample documentation and COC will be recorded as specified in Section 4.13 of the SAP. The sediment samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.3 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment to prevent cross-contamination between sampling locations. Decontamination of sampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.1 of the SAP (IT, 2000a). Decontamination of nonsampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.2 of the SAP.

4.4 Surveying of Sample Locations

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary to obtain the required level of accuracy. Horizontal coordinates will be referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum, 1983.

Elevations will be referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for soil, sediment, and surface water locations will be recorded using a GPS to provide accuracy within 1 meter. Because of the need to use permanent monitoring wells to determine water levels, a higher level of accuracy is required. Monitoring wells will be surveyed to an accuracy of 0.1 foot for horizontal coordinates and 0.01 foot for elevations, using survey-grade GPS techniques and/or conventional civil survey techniques, as required. Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP. All areas at this site must be cleared for UXO avoidance before any surveying activities will commence.

4.5 Analytical Program

Samples collected at locations specified in this chapter of this SFSP will be analyzed for the specific suites of chemicals and elements based on the history of site usage, as well as EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from the

Former Mock Village at Yahoo Lake, Parcel 130Q-X, consist of the following list of analytical suites:

- Target Compound List Volatile Organic Compounds - Method 5035/8260B
- Target Compound List Semivolatile Organic Compounds - Method 8270C
- Target Analyte List Metals - Method 6010B/7000.
- Nitroexplosives - Method 8330.

In addition, the sediment samples will be analyzed for the following list of parameters:

- Total Organic Carbon - Method 9060
- Grain Size - ASTM D-421/D-422.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-5 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP).

Chemical data will be reported via hard copy data packages by the laboratory using Contract Laboratory Program-like forms and electronic copies. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

4.6 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures specified in Section 4.13.2 of the SAP (IT, 2000a). Completed analysis request/COC records will be secured and included with each shipment of coolers to:

Attn: John Reynolds
Severn Trent Laboratories, Inc.
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Telephone: (865) 588-6401.

QA split samples collected for the USACE laboratory will be shipped to the following address:

U.S. Army Engineer District, Savannah
Environmental & Materials Unit
Attn: Sample Receiving
200 North Cobb Parkway
Building 400, Suite 404
Marietta, Georgia 30062
Telephone: (678) 354-0310.

4.7 Investigation-Derived Waste Management

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Appendix D of the SAP (IT, 2000a). The IDW generated at the Former Mock Village at Yahoo Lake, Parcel 130Q-X site is expected to include decontamination fluids and disposable personal protective equipment. The IDW will be staged in the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

4.8 Site-Specific Safety and Health

Health and safety requirements for this SI are provided in the SSHP attachment for the Former Mock Village at Yahoo Lake, Parcel 130Q-X. The SSHP attachment will be used in conjunction with the installation-wide SHP.

5.0 Project Schedule

The project schedule for the SI activities will be provided by the IT Project Manager to the Base Realignment and Closure Cleanup Team and will be in accordance with the WP.

6.0 References

Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Fort McClellan (FTMC), 1997, ***Fort McClellan Comprehensive Reuse Plan***, Fort McClellan Reuse and Redevelopment Authority of Alabama, prepared under contract to the Calhoun County Commission, November.

IT Corporation (IT), 2000a, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, August.

IT Corporation (IT), 2000b, ***Final Human Health and Ecological Screening Values and PAH Background Summary Report***, July.

IT Corporation (IT), 1998, ***Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama***, August.

U.S. Army Corps of Engineers (USACE), 1999a, ***Archives Search Report, Maps, Fort McClellan, Anniston, Alabama***, July.

U.S. Army Corps of Engineers (USACE), 1999b, ***Statement of Work for Task Order CK10, Remedial Investigations (RIs) at the Chemical Warfare Material Sites, RIs at the Fuel/Training Areas, RIs at the Print Plants/Motor Pools, RIs at the Ground Scars/Boiler Plants, RI at Range 24A, Site Investigations (SIs) at the Historic Ranges, and a Groundwater Investigation at Rideout Field at Fort McClellan, Alabama***, June.

U.S. Army Corps of Engineers (USACE), 1994, ***Requirements for the Preparation of Sampling and Analysis Plan***, Engineer Manual EM 200-1-3, September 1.

U.S. Department of Agriculture (USDA), 1961, ***Soil Survey, Calhoun County, Alabama***, Soil Conservation Service, Series 1958, No. 9, September 1961.

U.S. Environmental Protection Agency (EPA), 1993, ***Data Quality Objectives Process for Superfund, Interim Final Guidance***, EPA 540-R-93-071, September.

Roy F. Weston, Inc., 1990, ***Final USATHAMA Task Order 11, Enhanced Preliminary Assessment, Fort McClellan, Anniston, Alabama***, prepared for U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland, December.

ATTACHMENT 1

LIST OF ABBREVIATIONS AND ACRONYMS